DOCUMENT RESUME

ED 031 023 EC 004 163

By-Goldin, George J.; And Others
The Utilization of Rehabilitation Research; Concepts, Principles, and Research. Monograph No. 6.
Northeastern Univ., Boston, Mass.
Spons Agency-Social and Rehabilitation Service (DHEW), Washington, D.C.
Pub Date Feb 69
Note-52p.
EDRS Price MF-$0.25 HC-$2.70
Descriptors-Administrator Attitudes, *Exceptional Child Research, Information Dissemination, Information Utilization, Innovation, Negative Attitudes, Professional Personnel, Research Needs, *Research Utilization, *Vocational Rehabilitation

An overview of the utilization of rehabilitation research precedes a report on professional use of two monographs. Settings of the respondents, completeness with which material was read, specific practical uses and number of purposes for which they were used are presented and compared. Dissemination of research results and psychosocial acceptance or rejection of results are discussed. Descriptions are given of the information, education, diffusion, change, and action subsystems which comprise the research utilization system. Major variables indicating the effectiveness with which rehabilitation research is used and recommendations for increasing use are considered. (RJ)

ED031023

NORTHEASTERN UNIVERSITY

Northeastern Studies in Vocational Rehabilitation

EC004163

THE UTILIZATION OF REHABILITATION RESEARCH

CONCEPTS, PRINCIPLES, AND RESEARCH

February, 1969
Monograph No. 6

THE UTILIZATION OF REHABILITATION RESEARCH

Concepts, Principles, and Research

by

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New England Rehabilitation Research Institute
Northeastern University

Monograph No. 6
February, 1969

This investigation was supported, in part, by Research Grant No. RD-3017-G
from the Social and Rehabilitation Service
Department of Health, Education, and Welfare
Washington, D. C. 20201

ACKNOWLEDGEMENTS

Not infrequently, acknowledgements are set down as a formalized ritual engaged in by the writer. However, this monograph truly could not have been written without the help of a number of individuals. We are most grateful to Dr. William Usdane, Chief, Division of Research and Demonstration Grants, Social and Rehabilitation Service, Department of Health, Education, and Welfare, who suggested the original idea for this study.

We are particularly indebted to Dr. Reuben J. Margolin, Project Director of our Institute, whose knowledge and long experience in rehabilitation practice, administration and research was a constant source of valuable ideas. Our most sincere thanks go to Miss Sally L. Perry for her capable help in unsnarling data analysis problems. To Miss Nancy Peacock our gratitude for her efforts in searching out helpful concepts from the literature. As always our grateful appreciation is extended to Dean of Research, Martin W. Essigmann and the staff of Northeastern's Office of Research Administration for their help and support. We extend our warm thanks to Arthur F. Fitzgerald, Dean of Faculty for his constant interest and support of our efforts.

Our sincere thanks go to Mr. Neil Fallon, Regional Commissioner, Dr. Dorothy Singer, Assistant Regional Commissioner, Miss Eleanor Smith, Associate Regional Commissioner, Mr. Joseph P. Mirabella, Deputy Regional Commissioner, and the entire staff of the Regional Office of Social and Rehabilitation Service for their counsel and support.

Finally, our heartfelt thanks to Miss Cindi Kelley, our Institute secretary, whose patient and competent performance of the many clerical tasks connected with this study was so valued by us.

PREFACE

The relevance and authenticity of rehabilitation research is reflected in the degree to and manner in which it is utilized. The New England Rehabilitation Research Institute at Northeastern University has long been concerned with problems relating to the utilization of research in the core area of motivation and dependency.

This monograph represents a compilation of known concepts as well as some originally expressed conceptualizations in this area. These have been combined with the results of our own research on the utilization process, in the hope that further thinking will be stimulated and directed toward the goal of increased research utilization in the field of rehabilitation.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS ii

PREFACE iii

LIST OF TABLES v

HIGHLIGHTS OF FINDINGS vi

CHAPTER ONE: THE UTILIZATION OF REHABILITATION RESEARCH

AN OVERVIEW 1

THE LITERATURE 2

CHAPTER TWO: THE UTILIZATION OF TWO REGIONAL REHABILITATION RESEARCH INSTITUTE MONOGRAPHS 11

RESPONSE TO MONOGRAPH NO. 1: "DEPENDENCY AND ITS IMPLICATIONS FOR REHABILITATION" 12

RESPONSE TO MONOGRAPH NO. 4: "A COMPARATIVE STUDY OF REDUCTION OF DEPENDENCY IN FOUR LOW-INCOME HOUSING PROJECTS" 16

MONOGRAPH NO. 1 VS. MONOGRAPH NO. 4 18

CHAPTER THREE: PRINCIPLES AND CONCEPTS 21

RESULTS, DISSEMINATION AND RECEPTION 21

AGGRESSIVE RESEARCH RESULTS DISSEMINATION 23

CONCEPTUAL COMPREHENSION 25

PSYCHOSOCIAL ACCEPTANCE 26

CHAPTER FOUR: COMPONENT SYSTEMS IN RESEARCH UTILIZATION 29

THE INFORMATION-EDUCATION SYSTEM 29

THE DIFFUSION SYSTEM 31

THE CHANGE SYSTEM 31

THE ACTION SYSTEM 35

RELATIONSHIP OF SYSTEMS 35

INTERNALIZED ASSIMILATION 37

CHAPTER FIVE: SUMMARY AND RECOMMENDATIONS 39

APPENDIX 43

REFERENCES 45

LIST OF TABLES

Table		*Page*
1.	Professional Settings of Respondents	12
2.	Completeness with which Monograph No. 1 was read	12
3.	Specific Practical Uses Made of Monograph No. 1	13
4.	Number of Purposes for Which Monograph No. 1 was used	13
5.	Completeness with which Monograph No. 4 was read	16
6.	Number of Purposes for Which Monograph No. 4 was used	17
7.	Specific Practical Uses Made of Monograph No. 4	17
8.	Comparisons between Corresponding Variables on Monographs No. 1 and No. 4	19

HIGHLIGHTS OF FINDINGS

Research utilization is not infrequently thought of as a somewhat mechanical process. In this respect it is erroneously synonymously equated with research results dissemination. This monograph treats research utilization as a psychosocial process involving a dynamic interaction of specific systems which behave at least in a partially predictable manner. These systems are the information-education, change, diffusion, and action systems. Within the structure of these systems research utilization takes place as a result of five steps or phases which are contiguous. The steps are *results dissemination, information reception, conceptual comprehension, psychosocial acceptance* and *internalized assimilation.*

This monograph also reports on the results of a readership survey of the use of two monographs published by the New England Rehabilitation Research Institute. Results indicated that major uses of these publications were in a background or literature survey, in preparing a talk or paper, or as part of in-service training. The particular use made of the monograph was directly related to the type of professional setting in which the reader worked.

Recommendations stress the need for a partnership between researcher and practitioner in maintaining communication relative to the utilization of research and the importance of training in research utilization for both researcher and practitioner. The significance of creating national and local research utilization committees is emphasized. Research utilization conferences are deemed highly valuable. The technique of aggressive research results dissemination is recommended and discussed.

CHAPTER I

THE UTILIZATION OF REHABILITATION RESEARCH

An Overview

Although there is gratification and aesthetic development in the acquisition of knowledge for knowledge's sake, man seeks knowledge instrumental in helping him cope with environmental forces opposed to satisfaction of basic drives and creative needs. At times a dichotomy exists between basic and applied researchers. Basic researchers seeking universal laws and comprehensive theories concerning man and his milieu are accorded higher prestige than applied researchers who are perceived as preoccupied with bits and pieces of knowledge for the solution of specific problems and little concerned with the advancement and broadening of man's conceptual and intellectual horizons. This is a false dichotomy. The results of basic research sooner or later are applied for practical purposes. At times broad theoretical knowledge is derived from applied research.

The application of new knowledge is particularly important in the field of rehabilitation. Rehabilitation is, by definition, a problem solving process. Each individual or group which is to be raised to a higher level of functioning poses a problem which must be diagnostically approached and resolved. The development of organizational systems by which rehabilitation services can be most effectively and efficiently delivered is fraught with problems requiring solutions. The improvement of rehabilitation techniques in all areas (medical, psychiatric, counseling, vocational, etc.) is of vital importance.

One major method by which rehabilitation problems can be best resolved is clearly research. Usdane (25) summed up this idea pointedly in the statement:

> The use of research results is implicit in all research activities. Even pure research has the goal of achieving basic advances in knowledge which usually carry with them far reaching implications for use. Thus the utilization of research is the end which justifies the means.

Yet, it does not require intensive study of ongoing rehabilitation programs to discern that the utilization of rehabilitation research is lagging far behind its output. Perhaps the difficulty in the attainment of an adequate level of research utilization stems from the fact that rehabilitation is relatively new as an organized field. Although the strong concern with rehabilitation research utilization is comparatively recent, it is growing in intensity and at an accelerating rate. In his paper "Prob-

lems and Progress in the Dissemination and Utilization of Vocational Rehabilitation Research Findings by the Practicing Counselor", Usdane (26) pointed out and documented the existence of an information explosion taking place within the field of rehabilitation. He cited studies which reveal that currently existing research dissemination channels are insufficient.

However, as Usdane pointed out, the Social and Rehabilitation Service has taken and is taking steps to markedly increase the level of research utilization. In addition to final research reports SRS maintains a number of research publications, sponsors various types of research conferences and symposia and applies its administrative structure to fostering communication among researchers and between researchers and practitioners. Among its most recent activities to expand the utilization of rehabilitation research has been the charge by Social and Rehabilitation Service to the Regional Research Institutes and Research and Training Centers to increase their involvement in research utilization procedures. SRS has created a Research Utilization Branch within its central office, evolved intramural research activities within the central office, developed plans for a data retrieval system and created and developed the new position of research utilization specialist to function within the state rehabilitation agencies. Moreover, Social and Rehabilitation Service has developed a special task force on research utilization.

This monograph seeks to achieve four major purposes:

1. To selectively review the literature in the field of research utilization as it applies to rehabilitation
2. To report on a study carried out at the New England Rehabilitation Research Institute on the utilization of its disseminated literature
3. To present and discuss theories and principles of research utilization including original conceptual formulations based upon research observations and experiences of the New England Rehabilitation Research Institute
4. To offer a series of concrete recommendations designed to improve and increase research utilization in the field of rehabilitation

The Literature

A survey of the literature on rehabilitation research utilization reveals that technical knowledge in this area is sparse. Perhaps the dearth of research in the field of research utilization is best illustrated by the fact

that the Tacoma Goodwill Industries Research Utilization Study carried out by the Human Interaction Research Institute (9) has become a classic study in the field at a time when it is hardly three years old. This frequently quoted project was a milestone in utilization research in that it systematically studied factors which impede and those which facilitate the spread of innovation in the field of vocational rehabilitation. The study identified the communication, organizational, and attitudinal barriers which prevent rehabilitation agencies from creating their own innovations and adopting the successful innovations of others. Two strategies for surmounting barriers to innovation were experimentally tested.

> One was the development of new techniques for disseminating information about a successful, innovative demonstration project to potential users. The other was the use of consultation with the management staff of five sheltered workshops which could be considered as potential users of at least some aspects of the demonstration project.
>
> In testing their hypotheses concerning the role of several types of communication in stimulating the utilization of research findings, the authors prepared a brief readable booklet describing a significant rehabilitation demonstration project; held a conference to facilitate an interchange of points of view and experiences related to the project; and sent an experienced spokesman for the demonstration project to provide on site consultation to potential user agencies.
>
> It was found that the non-technical booklet and the conference served as effective means of communicating results of research and of stimulating others to use some of the demonstrated methods which were reported to be effective.

The Human Interaction Research Institute Studies demonstrated that conferences are a most effective vehicle in the stimulation of research utilization if those who attended are there to teach as well as learn, to speak as well as listen. Site visits to demonstrations were found to be an excellent adjunct to the conference method of promoting research utilization. The HIRI studies also showed that written reports, rigorously edited and with cogent summaries, can make the user more receptive to the utilization of research although they do not lead directly to the adoption of innovation. The Tacoma Goodwill Research Utilization Studies indicated that varied kinds of consultation from behavioral scientists and practitioners as well as from clients can foster innovation by piercing the

provinciality of the small agency and by encouraging independence in sectors of the large agency.

It is important to recognize at the outset that there is no simple "royal" road to the dissemination and utilization of research. It is not a mechanical process whereby one "turns the crank" and sets in motion certain procedures by which goals are achieved. There are no "gimmicks". The utilization of research is a process which involves not one or a few individuals who "get the job done" but is rather a function of the interlocking relationships of many individuals and groups at different levels. In his discussion of scientific and technical communication Licklider (11) captured the essence of the problem in his statement:

> As individual mastery (of the body of available raw information) becomes impossible, we turn (without being sharply aware of our changing strategy) to a group approach, to individual specialization plus organization across and over individuals. But it is still essential to bring together in an individual mind the idea relevant to a given problem. Many of the difficulties of scientific and technical communication and much of the proliferation of scientific and technical literature stem from that requirement. In the days of individual mastery, a man attacked a problem by drawing pertinent ideas from his memory's store — and his memory's store performed well for him even though no one understood its process of storage, organization and retrieval. In the group approach, however, these processes have to be externalized, and to be made to work effectively they have to be understood. Pertinent ideas have to be selected from diverse human memories or other sources and they have to be communicated to the individual or individuals in whose minds they interact to yield solutions.

Thus, research utilization can be described as a process involving psychosocial transactions and resulting in social change. In this respect, the literature on social change (which is quite ample) is helpful.

In conceptualizing the utilization of rehabilitation research as a form of social change or, at the least, heavily involving social change Rogers (21) set down a group of social psychological principles which should be considered if research innovations are to be communicated and implemented (the diffusion of innovation).

1. The individual or group, in order to utilize the research findings, must perceive the *relative advantage* of the new way of doing things over the existing way which is to be superseded.
2. The greater the degree to which an innovation is *compatible* with the existing norms and values of the social system toward which it is directed. the greater the probability of its acceptance and utilization.

3. New ideas which lend themselves to *divisibility,* that is, step by step or small scale trial, are more apt to be tried.
4. The degree to which an innovation is *complex* and relatively difficult to understand affects its rate of dissemination.
5. The easier it is for individuals to view the results of an innovation (*communication* of results), the more likely they are to take action on an innovation.
6. *Time* is a major variable which is involved in the adoption of innovation.
7. *Person to person influence* is much stronger than the written word alone in achieving the dissemination and utilization of research.
8. Individuals can be classified in regard to the *speed with which they adopt innovations* or new ideas. Rogers uses the terms Innovators, Early Adopters, Early Majority, Late Majority, and Laggards to describe the rates at which various members of social systems try new ideas.

One of the major vehicles through which innovations are evolved and tested in the field of rehabilitation is the demonstration program. However, there can be dysfunctional consequences of demonstration programs if they are not properly carried out. Rein and Miller (19) took the position that one of the latent functions of the demonstration program is its postponement of major action on problems thus avoiding political and budgetary scrutiny, and at the same time taking some action to resolve problems and meet needs. They characterized the demonstration as an instrument of change which does not severely threaten the established institutions, requires relatively little money, demands no immediate action, and represents "the middle ground between conforming and uncompromising reform". Rein and Miller posited the ultimate test of the success of a demonstration program in terms of whether or not it can actually influence long term and large scale policy.

While some people in the field of rehabilitation would find themselves in some disagreement with Rein and Miller, their statement concerning the chief failing of demonstration projects appears valid; this failing is not really knowing how the lessons learned through the rigors of scientific research will somehow lead to large scale adoption and major shifts in the aims, styles, resources and effectiveness of major social service organizations and services. Nevertheless, demonstration projects should not be condemned. Many demonstrations have resulted in the

creation of prototype services which have been satisfactorily replicated for the benefit of clients. Also, demonstrations have served to point up programs and procedures which are not feasible and should be avoided.

Nagi (15) described the importance of a partnership between researcher and practitioner if research utilization is to proceed most effectively. Specifically, he stated the necessity for the establishment of feedback by which researchers could learn about the practitioner's experiences with research results and their observations about the conditions under which these results deviate. The importance emerges of fostering a free flow of communication between researcher and practitioner and the labeling of results as tentative until thoroughly tested in practice.

Halpert (8) stated that professional practitioners tend to block the communication of research results for utilization by their very professionalization. In becoming professionalized they acquire certain norms, values and ways of doing things which become firmly entrenched and, in a sense, sacred. They begin to think in terms of their own discipline rather than in terms of the need. Halpert discussed four major variables which must be considered if effective research utilization is to take place.

1. *Frames of reference* within which individuals perform their professional tasks and within which they think about and deal with social and health problems must be understood. For this reason it is essential to work through leading practitioners and professional associations.
2. It is essential to take into consideration the *motivation of the target audience* and the motivations that they are likely to attribute to the people who ask them to change their ways of thinking and behaving. Appropriate ways of creating a desire for change in a target audience must be found and developed.
3. The validity and desirability of *new practices must be related to the past experiences* of the target audience. New procedures must be tied in with old ways of doing things as much as possible. One must show people how new procedures help them do the job they have been trying to do in a better way.
4. *The things to which people are personally committed by direct participation are the things to which they usually owe the greatest allegiance.* The more ways in which practitioners can become directly involved in trying out new procedures, the more effective research utilization will be. It is sometimes possible to get practi-

tioners to try out new procedures and techniques before they are fully convinced that these are the best possible procedures. If the new practices do prove to be useful, then attitude change will follow behavior change.

5. *There is a wide variation in individual response to communications of any kind.* The changes in attitude and behavior that result from any form of communication vary in duration. Some people will accept change and then revert to former practices. Others will reject new ideas at first but then later accept and apply them. Whatever method of communication is utilized, whatever the audience or target group, the message must be repeated over and over again to encourage utilization of research knowledge.

Merton (13) assessed some of the blame for blockage in the utilization of research upon the administrator's failure to adequately communicate with the researcher. He stated:

> Experience suggests that the policy maker seldom formulates his practical problem in terms sufficiently precise to permit the researcher to design an appropriate investigation.

Frank (4) also emphasized the importance of methodology to the researcher in determining his enthusiasm relative to the selection of research which may or may not be readily utilized. He pointed out that:

> An investigation that permits the researcher to utilize his familiar research tools upon a professional problem will be considered by his discipline as relevant and important. In practice that often means that the prestige of certain problems and the respectability of accepted methods become more important than the exigent questions raised by practitioners.

Since the utilization of rehabilitation research involves the adoption of innovation, a process of sociocultural change is involved. Niehoff (17) identified six primary process variables upon which the acceptance or rejection of induced sociocultural change (use of research results) depend. These variables were:

1. Whether or not there is a felt need for change among the individuals or group which the change will affect
2. Whether or not those who will be affected by the change perceive any practical benefit in adopting the change
3. Whether or not and how the traditional leaders or the group toward whom the change is directed are brought into the planning and implementation of the change process

4. The methods of communication used by the change agent*
5. The manner in which the change agent utilizes and adapts his innovation to the existing cultural patterns
6. The level and kinds of participation which the change agent is able to obtain from the participants

One of the basic theoretical formulations in the field of social change was evolved by Kurt Lewin (10) in which he posited a process involving three phases:

1. The unfreezing of the present situation
2. The movement to a new state or condition
3. The refreezing within the structure of the established new condition

The unfreezing depends upon a felt dissatisfaction with the existing condition or situation and is based upon the assumption that people wish to effect improvement in their present condition or not allow deterioration in their current situation. Lewin's theory utilizes the technique of creating dissatisfaction with existing conditions and the motivation of reward or inducement in facilitating movement to the new condition. Following the change in behavior new norms must be established if the refreezing to incorporate and maintain the new condition is to be accomplished.

Work by Moore (14) and Sensenbaugh (22) in the field of education serves to reinforce the validity of Lewin's concepts. Influenced by the theories of Kurt Lewin, Lippitt, Watson and Westley (12) developed a conceptual model for precipitation and control of planned change which has proven useful and is of value as a framework in developing ideas for the utilization of rehabilitation research. Their analysis of change focuses upon the relationship of the change agent with four basic types of dynamic systems: the individual personality, the face to face group, the organization, and the community. Since the utilization of rehabilitation research to be maximally effective involves all four systems, description of the psychosocial catalytic role of the change agent within these systems is helpful.

Watson and Glasser (28) alluded to a "fait accompli" technique in which it is sometimes more effective to introduce the change operation first before attempting to bring about the desired attitude change among

* The now widely used term "Change Agent" was adopted by the National Training Laboratory Staff in 1947.

those who are called upon to accept the change. Although this method runs counter to most social change theories which are based upon democratic participation and involvement of participants in the change process, the authors pointed out that in some cases:

> . . . as long as a change seems merely hypothetical, many persons find it difficult to come to grips with it. They are beset by vague fears and discomforts. When the change has been actually experienced, its advantages may be more apparent and the unreal objections cannot readily survive.

In a recent paper presented at a national conference on the Utilization of Rehabilitation Research in Poverty Settings held at Northeastern University, Criswell (1) suggested an innovative approach and stressed the importance of subject participation in the formulation and conduct of research as a means of gaining involvement and value in the implementation of research results. She proposed that:

> Probably the most innovative future direction of rehabilitation research and demonstration will lie in the greater freedom and creativity which is now being encouraged in experimental subjects. This shift of power away from the experimenter is fostered by the spirit of our times in which self direction and community involvement have risen to prominence together, although not always ideally coordinated.
>
> With the general trend away from acceptance of a passive role in any group or organization, whether it be a hospital, school, office, church or theater, the experimental subject also is shedding his subordinate position as the charge of the experimenter. "Subject power" has arrived.
>
> It can then be expected that rehabilitation research and demonstration will emphasize the type of study in which the subject plays a very active role, even in some cases helping to plan the procedure to be demonstrated, perhaps helping to collect observations or assisting in interpretation of final results. More active and increasingly self directed behavior will also be the topic of study.
>
> This is already apparent in a number of projects which emphasize self directed activity as in programmed learning, in the development of leaderless therapeutic groups of clients and in the development of project participants who serve as aides in research observation, counseling, outreach or client evaluation.

Yet, it should be noted that not all research utilization emanates from one direction, that is, from researcher to practitioner, but frequently is and should be initiated by the practitioner in search of a better way of doing things. In this regard, the bi-directionality of research utilization is well expressed in the report of the U.S. Department of Labor Seminar, "Putting Research Experimental and Demonstration Findings To Use"

(24). This report speaks of "problems in search of a solution" and "solutions in search of appropriate problems".

An excellent statement which encompasses the philosophy, goals and problems of research utilization in the field of rehabilitation was presented in a keynote speech by Nixon (18) at the rehabilitation research utilization conference held at Northeastern University. His position is summed up in the following excerpt.

> To move towards effective research utilization requires a clear and sharp dedication to usefulness as the prime requisite for designing, proposing, and funding projects. Perhaps to achieve effectiveness and relevancy in research, it is simply necessary to start at the beginning, to integrate research at the very outset in the design and the operation of every program. Plans to have special staff members who serve as agents of change and research utilization make a lot of sense, and certainly represent a small expenditure to avoid wastage of large research investments. But special agents probably will not be successful unless we have interlocked the research undertaking and the program designers and operators as mutually reenforcing partners for program effectiveness.
>
> But even when good and relevant research is achieved, its utilization is not automatic. Dissemination is not utilization, and much more than "Brief Summaries," announcements of results, and general research conferences are probably required to translate good research products into good program results. A whole new system of research delivery and application needs to be developed. Perhaps we need to have a "do it yourself" kit with every research report. This conference will doubtless guide us in that direction . . . Above all, research — to be utilizable and utilized — must be *problem* oriented. It must help identify the problems, the "hang-ups," the needs, and the gaps in program and operation. What works, what doesn't work — and why? The linkage of research, and especially follow-up and evaluation research, must be with *change,* with *redesign* of programs and adjustments in methods of operation. Results must be profoundly and objectively recorded and analyzed if research is to be a useful compass in this roiling and troubling sea of human resources development.

CHAPTER II

THE UTILIZATION OF TWO REGIONAL REHABILITATION RESEARCH INSTITUTE MONOGRAPHS

In an attempt to determine what use is made of its research publications, the New England Rehabilitation Research Institute sent out one thousand questionnaires concerning each of two New England Rehabilitation Research Institute monographs. Monograph No. 1, *Dependency and its Implications for Rehabilitation,* is a comprehensive survey of the research literature in the field of dependency with original conceptualizations in the area of dependency to the field of rehabilitation. Monograph No. 4, *A Comparative Study of the Reduction of Dependency in Four Low-Income Housing Projects,* is a preliminary report on four concerted service projects which involved rehabilitation in high poverty settings. Monograph No. 4 presents an analytical model for carrying out research and rehabilitation among socially and financially dependent (welfare clients and others) individuals. These questionnaires were sent to professionals and students in the rehabilitation field who were on the Research Institute's mailing list and had received the publications mentioned above. The questionnaires for each monograph were identical and consisted of four sections (see Appendix).

The first section sought to determine the respondent's general impressions of the monograph. Respondents were then questioned concerning their specific use of the monograph and were given a list of nine uses to check:

In teaching a course
In in-service training
In preparing a lecture, talk or other paper
In preparing a research design or proposal
In background or literature survey
In clinical practice
In administrative planning
In social or community planning
Other, please specify

The third section inquired if and how the monograph stimulated the respondent's thinking and the fourth section invited general comments. Two hundred and fifty-four or 25.4% of the respondents returned one or both questionnaires. Those who returned the questionnaires were associated with a variety of agencies as indicated in Table 1.

General opinion of the quality of the monograph was favorable, particularly so since most of the people who received it are involved in the rehabilitation field and receive large volumes of rehabilitation literature.

TABLE 1

Professional Settings of Respondents

Setting	*N*	*Per Cent*
Rehabilitation Service Administration, Statewide Planning, Division of Vocational Rehabilitation	70	27.56
Research and Training Centers, Regional Rehabilitation Research Institutes	10	3.93
Rehabilitation Facilities	24	9.45
Universities and Medical Colleges	70	27.56
Hospitals and Mental Health Agencies	38	14.96
Public Health, Welfare, and Education Agencies	11	4.32
Organizations (Private)	14	5.51
Other	9	3.54
Unknown	8	3.15

N = 254 (99.98%)

Response to Monograph No. 1, "Dependency and Its Implications for Rehabilitation"

Two hundred and thirty-six, or 23.6% of the questionnaires concerning Monograph No. 1 were returned. Table 2 indicates the completeness with which Monograph No. 1 was read. The reading was found to be acceptably clear or very clear by 93% of the respondents, 53% finding it acceptably clear and 40% finding it very clear. Ninety-three per cent found the monograph moderately or highly interesting, 41% finding it moderately interesting and 52% finding it highly interesting. Only .84% of the respondents found the monograph unclear

TABLE 2

Completeness With Which Monograph No. 1 Was Read

Portion Read	*N*	*Per Cent*
Entire	124	52.54
More Than One-Half	42	17.80
One-half	33	13.98
Less Than One-Third	23	9.75
None	13	5.51
Unknown	1	.42

N = 236 (100.00%)

or uninteresting. While the monograph, then, was generally well received, the 10% who read less than one-third of it and the 6% who did not read it at all should not be ignored.

Section two yielded significant information as to what specific, practical uses were made of the monograph. Table 3 indicates how Monograph

TABLE 3

Specific Practical Uses Made of Monograph No. 1

Use	*N*	*Per Cent*
Background or Literature Survey	61	24.02
Preparing Lecture, Talk or Paper	53	20.87
In-service Training	50	19.69
Teaching a Course	42	16.54
Preparing Research Design or Proposal	30	11.81
Clinical Practice	30	11.81
Administrative Planning	29	11.42
Social or Community Planning	24	9.45
Other	8	3.15

N = 327

No. 1 was used by its readers. Respondents used the monograph for as many as five different purposes as shown in Table 4.

It is interesting to note that four of the categories for which the monograph was less used were in clinical practice, administrative planning, social or community planning and in the preparation of a research design or proposal — four of the most practical aspects of rehabilitation. On the other hand, the three major uses made of the

TABLE 4

Number of Purposes for Which Monograph No. 1 Was Used

No. of Uses	*N*	*Per Cent*
One	75	31.78
Two	62	26.27
Three	20	8.47
Four	12	5.08
Five	4	1.69
None	50	21.19
Not Read	13	5.51

N = 236 (99.99%)

monograph were in a background or literature survey, in preparing a lecture, talk or paper and in in-service training, uses only indirectly related to the actual dealings with clients and their problems.

Such differential use is undoubtedly attributable, at least in part, to the introductory nature of the monograph. It could, however, reflect a reluctance by those in the field to put research results into practical use. While a reluctance of this nature is in no way substantiated by the findings of our research, the literature indicated the prevalence of such attitudes. It may be that the lack of use of Monograph No. 1 in clinical practice reflected the occupational placement of the respondents since they occupied essentially non-clinical positions. Nearly one-quarter of all respondents used Monograph No. 1 in background or literature survey, an indication that the comprehensive summary of the literature in the area of dependency and motivation which was done in Monograph No. 1 was needed and appreciated. From a practical standpoint, however, it is encouraging to note that a major use of Monograph No. 1 was in in-service training.

Seventy per cent of the respondents reported that the monograph did stimulate their thinking. The question was not answered by 5.51% of the respondents because they had not yet read the monograph; 6.36% simply left the section unanswered; 10.59% said the monograph did not stimulate their thinking. Many of the respondents whose thinking was stimulated by Monograph No. 1 gave some indications as to how their thinking was stimulated. Ways in which the thinking of respondents was stimulated are listed below:

1. Stimulated group discussions with counselors or rehabilitation students
2. Stimulated new or different ways of thinking about dependency
3. Stimulated thinking about work with actual clients
4. Stimulated thoughts for the setting up or reorganization of rehabilitation or related programs
5. Stimulated ideas for further research or existing research

Thus, the monograph stimulated the thinking of more than three-quarters of the respondents and stimulated their thinking over a variety of aspects of the rehabilitation field, ranging from general knowledge to clinical practice.

As previously noted, the monograph is basically introductory and conceptual in nature. Nevertheless, respondents did apply the information in the monograph to practical use as a result of thought stimulation by it. Perhaps practical use can be increased in utilizing rehabilitation

research monographs if the implications of research results for rehabilitation are very clearly stated, with some clinical applications spelled out and specific programs for rehabilitation suggested. Moreover, since slightly less than one-half of the respondents failed to read the entire monograph, results might be more widely put into use if specific implications and practical applications of the research were woven throughout the monograph, rather than left for one or two sections.

The final section of the questionnaire invited other comments on the monograph. Not all of the respondents chose to write additional comments in this section. The comments of those respondents who completed this section of the questionnaire conveyed the ideas indicated below.

That Monograph No. 1 was:

1. Excellent
2. Mainly an informative review or reference source
3. Good, but too abstract
4. Of specific value in work in which they were currently engaged
5. Helpful in establishing a general understanding of the problem of dependency
6. Improvable

Attention should be given to some of the "other" responses in the "stimulate thinking" and "other comment" sections, for these responses lend additional information as to what rehabilitation people thought of the monograph and what use they made of the research. Several of the "other" responses in the "stimulate thinking" section expressed the respondent's interest in applying some of the concepts in Monograph No. 1 to specialized areas of rehabilitation. Specifically, respondents mentioned applying the concepts to work with the aged, work with blind children and those with communication (speech and hearing) handicaps.

Among the responses in the "other comments" section was one which focused on what is apparently a major problem in achieving maximum research utilization. The respondent, who is from a State Division of Rehabilitation Services, suggested:

> Presentation should be more concise, simple and attractive to compete with other materials coming across the desk. We are interested in nuggets as compared to complex reports . . .

A key word in the above statement is "compete," for any research in the rehabilitation field is, indeed, in competition with studies in other fields (psychology, sociology, social work, etc.) for the attention of

rehabilitation professionals. Thus, a primary concern when publishing research should be to gain, then hold, the attention of prospective readers. To gain the attention of potential readers, steps as simple as an attractive cover and format as well as advance notice of a monograph's publication might be helpful. In order to hold the reader's attention, an attempt must naturally be made to write vital, interesting material as early as possible in the publication.

As previously mentioned, readers might maintain greater interest if definite proposals as to how the research can be practically applied to the rehabilitation field are woven throughout the publication. This might prove difficult if the research is published in a series of monographs. But if interest is not maintained in the first monograph, the ideas in subsequent monographs, no matter how excellent, will be wasted.

The respondent, quoted above, expressed an interest in "nuggets" rather than complex reports. Of course, researchers cannot restrict themselves to writing "nuggets", but clear concise summaries at the end of each section of a publication could be useful to those who simply lack time to read the whole publication. Such summaries would allow a greater number of people to consider results and ideas resulting from research.

Response to Monograph No. 4: "A Comparative Study of the Reduction of Dependency in Four Low-Income Housing Projects"

General impressions of Monograph No. 4 were not quite as favorable as they were of Monograph No. 1. Table 5 shows the completeness with which Monograph No. 4 was read. The reading was found to be acceptably or very clear by 88% of the respondents. Fifty-seven per cent found it acceptably clear and 31% found it very clear. None of the respondents felt that Monograph No. 4 was unclear. Eighty-two per cent considered

TABLE 5

Completeness with which Monograph No. 4 was Read

Portion Read	*N*	*Per Cent*
Entire	62	34.64
More Than One-Half	28	15.64
One-Half	25	13.97
Less Than One-Third	47	26.26
None	17	9.50
Unknown	0	0.00

N = 179 (100.00%)

the work moderately or highly interesting, with 46% classifying it as moderately interesting, and 36% as highly interesting. Seven per cent of the respondents found Monograph No. 4 uninteresting.

Respondents used Monograph No. 4 for from one to six different specific purposes, as indicated in Table 6. The distribution of specific uses of Monograph No. 4 is shown in Table 7. For example, monograph

TABLE 6

Number of Purposes for which Monograph No. 4 Was Used

Uses	*N*	*Per Cent*
No Specific Use Made	72	40.22
One	40	22.35
Two	32	17.88
Three	13	7.26
Four	2	1.12
Five	2	1.12
Six	1	.56
Not Read	17	9.50

N = 179 (100.01%)

TABLE 7

Specific Practical Uses Made of Monograph No. 4

Use	*N*	*Per Cent*
Background or Literature Survey	34	18.99
Preparing Lecture, Talk or Paper	31	17.32
In-service Training	20	11.17
Administrative Planning	18	10.06
Teaching A Course	17	9.50
Preparing a Research Design or Proposal	17	9.50
Clinical Practice	10	5.59
Social or Community Planning	11	6.15
Other	9	5.03

N = 167

No. 4 was used at Alfred University in Alfred, New York, where the school held its first alumni seminars this summer, as the basic text for a week-long seminar on contemporary urban problems. The monograph served as the basis for the week's discussions and stimulated much interchange of ideas among the participants.

When asked if the monograph stimulated their thinking, 16.20% of the respondents did not answer the question. Nine and one-half per cent had not yet read the monograph, 18.44% said the monograph did not stimulate their thinking, and 55.87% said the monograph did

stimulate their thinking. A number of areas in which Monograph No. 4 stimulated thinking are noted below:

1. Stimulated group discussions among counselors or rehabilitation students
2. Added to the general knowledge of the subject
3. Stimulated thinking in terms of work with individual clients or in a larger scale program
4. Stimulated thinking about the area of dependency as related to housing and the problems of the disadvantaged
5. Stimulated thinking about dependency in terms of the community or society in general
6. Stimulated a search for more information on the subject
7. Stimulated thinking about the effects of the structure of communities and agencies

As on the questionnaire for Monograph No. 1, relatively few of the respondents made "other comments" on the questionnaire for Monograph No. 4. Those who commented expressed the following ideas:

1. A good resource material
2. Negative criticisms
3. A desire for practical applications to be presented in research writing
4. Not relevant to respondent's work
5. General approval, including such comments as "may we remain on your mailing list"
6. Comments on a specific value

Research, then, is used for a wide range of constructive uses. Researchers cannot, however, content themselves with the mere publication of their results for regardless of their significance there is no guarantee that they will receive the attention which they merit. Research publications literally compete with large volumes of other publications for the attention of prospective readers. Thus, research which is published in attractive form, which is well-written with clear and definite implications and applications for its field, which is made readily available to whomever wants it, and which has enough material in summary form to attract those who are too busy to read thorough reports is more likely to be read and utilized.

Monograph No. 1 vs. Monograph No. 4.

Statistical comparisons were made between Monographs No. 1 and No. 4 for responses to corresponding variables. Significant positive correlations were obtained for amount read, clarity, utilization, number

of uses, stimulation of thinking, and all specific uses with the exception of "social and community planning". A trend toward a significant positive relationship was obtained for interest. The Chi Square values and levels of significance are presented in Table 8. Monograph No. 1 was significantly more extensively read and utilized than Monograph No. 4. This result is understandable since Monograph No. 1 dealt with dependency, a concept applicable to many problems. Monograph No. 4, on the other hand, was related to a specific problem.

TABLE 8

Comparisons Between Corresponding Variables on Monographs No. 1 and No. 4

Variable	X^2	*df*	*p<*
Amount Read	15.89	1	.001
Clarity	46.20	1	.001
Interest	2.91	1	.10
Utilization	16.61	1	.001
Number Of Uses	8.39*	1	.01
Used To Teach	35.81	1	.001
Used For In-Service Training	43.35*	1	.001
Used For Lecture, Talk, Paper	18.20	1	.001
Used For Research Design	8.01*	1	.01
Used For Literature Survey	26.26	1	.001
Used In Clinical Practice	27.36*	1	.001
Used In Administration Planning	23.71*	1	.001
Used In Social And Community Planning	—	—	ns
Stimulated Thinking	7.58	1	.01

*Yates Chi Square

Professional settings in which the respondents functioned were combined into four major areas for purposes of analyzing differences between organizational affiliation and the reading and use of the monographs. The four major areas were: educational, counseling, medical, and the rehabilitation facilities. Specifically, educational settings included regional rehabilitation research institutes, research and training centers, statewide planning agencies, universities and colleges, and medical schools, private organizations; counseling included Rehabilitation Services Administration, Division of Vocational Rehabilitation, and family service, public welfare, and public health agencies; medical included hospitals and mental health agencies; rehabilitation facilities included such agencies as sheltered workshops, rehabilitation centers, schools for the retarded and blind, etc. The rationale was simply to ascertain the

extent to which groups with these various orientations differed in the utilization of research materials.

As would be expected for both Monographs No. 1 and No. 4, respondents affiliated with colleges and universities were significantly more likely to have utilized the information in teaching than were the other groups (Chi Square = 24.91, df = 1, $p < .001$; Chi Square = 10.93, df = 1, $p < .001$).

Similarly, those involved in counseling or affiliated with hospitals or rehabilitation facilities were significantly more likely to have used the materials for in-service training (Chi Square = 34.93, df = 1, $p < .001$; Chi Square = 10.39, df = 1, $p < .001$). Monograph No. 1 was applied to clinical practice by those affiliated with hospitals and rehabilitation facilities to a significantly greater extent than by the educators or counselors (Chi Square = 22.51, df = 1, $p < .001$); a trend in the same direction was obtained for the same use of monograph No. 4 (Chi Square with Yates' correction = 3.44, df = 1, $p < .07$). Educators and those related to the academic world were significantly less likely to have utilized Monograph No. 1 in administrative planning (Chi Square = 4.53, df = 1, $p < .04$) and both educators and those affiliated with a specific rehabilitation facility tended to have been less likely to have applied Monograph No. 4 to this area (Chi Square = 3.20, df = 1, $p < .08$). In terms of utilization of Monograph No. 1, those affiliated with educational institutions or hospitals were significantly more likely to have put the monograph to at least one use than were those concerned with counseling and rehabilitation (Chi Square = 4.70, df = 1, $p < .04$); no such relationship was found for Monograph No. 4.

Generally speaking, then, specific use of information appears to be a function of the specific responsibilities inherent in the professional position. For example, no differences between groups existed for uses involving literature surveys, talks or papers, and research design or proposal. These responsibilities are not unique to any one of the four groups. However, clinical practice, in-service training, and teaching are among the professional duties of some, but not all, groups.

It would appear that counseling clinicians become so involved with practice and in many cases are so pressed for time (large caseloads) that their orientation is to getting the task accomplished rather than to the consumption of research relative to the task itself. Our observations, then, would indicate a need for increased training and motivation for those professionals in rehabilitation counseling agencies in the utilization of research, especially in the area of clinical practice.

CHAPTER III

PRINCIPLES AND CONCEPTS

The body of knowledge concerning research utilization is relatively small and the allocation of attention to this area in a formalized way to acquire increased knowledge is relatively recent. The field of rehabilitation is becoming highly involved with the problems of research utilization because it sees the application of its research results as a major means for problem resolution. The New England Rehabilitation Research Institute, since its inception, has been highly concerned with achieving the utilization of its own research results in the core area of "motivation and dependency". It has experimented with various techniques to promote the utilization of its research results and has carried on some research in the problem area of research utilization itself. Some of this research has proved most interesting. The conceptualizations which follow are based upon the experiences, research and observations of our Institute in the field of research utilization.

The utilization of research in the field of rehabilitation is affected by a number of different variables, at times acting in concert and at times acting mutually antagonistically. To understand what takes place from the time a piece of research is completed to the achievement of its utilization (if, indeed, it is ever utilized), it is heuristic or helpful to break down research utilization into what can be designated as component processes. These processes are:

1. Results Dissemination
2. Information Reception
3. Conceptual Comprehension
4. Psychosocial Acceptance
5. Internalized Assimilation

Results, Dissemination and Reception

It seems almost absurdly superfluous to state that if research is to be utilized, results must first reach the desks of those individuals who can initiate its utilization. Yet, this statement must be made since experience shows that the dissemination process takes place at a level which is far from adequate. The major vehicles by which research results are disseminated are:

Research Reports
Books
Journal Articles
Monographs
Research Conferences
Abstracting and Data Retrieval Systems
Informal Verbal and Written Communication Among Professionals

All these vehicles have their value but also are subject to limitations. Reports on research do not usually have a wide distribution. While books are widely distributed and publicized their careful reading is frequently confined to members or those individuals related to the academic community. Studies show that in spite of the proliferation of professional journals and the status linked "journal consciousness" of the professional community, journal articles have a limited readership. Approximately two thousand readers will be exposed to a journal article (20). Monographs, like books, usually attract the more academically oriented reader and have a limited distribution.

The research utilization conference is an excellent means of disseminating research results to key people in the field of rehabilitation. However, even with its *"utilization propogation potential"*, that is, its capacity to stimulate those at the conference to transmit research results to others who did not attend the conference, its propensity for wide results dissemination is limited. Abstracting and data retrieval systems are an excellent means of handling the dissemination of research information. Nevertheless, they require the motivation of the practitioner and administrator to use the systems. Moreover, it requires a certain type of mental set to use them so that their mechanistic aspect will not create a feeling of awe and threat in the potential user. Informal communication represents an important means of stimulation of the dissemination of research results, if procedures for stimulating it could be developed. The discussion of the limitations of these research dissemination methods is in no way meant to negate their value or detract from their usefulness but, rather, to indicate the need for further refinement and effectiveness in their use.

There are two major variables which must be considered when disseminating research results. These might be labeled as *dissemination scope* and *dissemination selectivity*. The proper balance between these

two dimensions is of major importance. A broad distribution or scope of dissemination of research results is of limited value unless some of the disseminated information reaches the desks of and is read by the key people to whom it has potential value and who are in a position of sufficient sensitivity and power to initiate at least some action in the direction of its utilization.

Much of the research literature is routed directly to the file drawer with only a cursory glance by administrators and practitioners, because they are not the individuals for whom the results have *operational meaning.* Therefore, although dissemination scope should be broad enough to encompass the possibility of attracting the less likely users, a high degree of care and thought must be given to the selection of a mailing list of key people to whom follow-up literature on particular projects might be sent. Another means of satisfying the scope and selectivity criteria might take the form of a broad circulation of research summaries or briefs along with the transmittal of in-depth follow-up material on the research to a highly selected group of potential users.

It is most important to develop a *research utilization mindedness* within the entire field of rehabilitation. The fact that research information is disseminated does not necessarily mean that it will be read, let alone utilized. The lack of motivation for the reception of disseminated research information which had been communicated to the staff of New England Rehabilitation Research Institute in our conferences with administrators and practitioners is cause for concern. This lack of motivation is reflected in a statement by Dumas (3) at a research utilization conference concerning data retrieval systems. He observed:

> I was able to follow the development of many systems. The overwhelming impression one gets is that many projects were started and few ever finished. Of these few, an even smaller number were implemented and are still in existence today. Finally, of this "even smaller number", only a handful can be said to have even partially achieved their goals.

The problem, then, is to develop the knowledge of criteria by which to select those individuals who are in the best positions to utilize research and beam dissemination outputs in their direction while at the same time stimulating their motivation to become receptors of this information.

Aggressive Research Results Dissemination

In the early 1950's there was much experimentation by the field of

social work with what was then called aggressive casework. This concept involved reaching out to the client to extend casework services which he had not initially requested. Using this concept as a model, the New England Rehabilitation Research Institute experimented with the idea of aggressively seeking a market for its research results among key people associated with the field of rehabilitation to whom such results might prove of value. The Institute sent out sixty letters describing its research monographs one and four to what it considered key individuals in the field of rehabilitation. These individuals were essentially in administrative positions. The letters offered to send copies of these monographs if written requests were forthcoming. Thirty of these letters or 50% were answered with letters requesting copies of the monographs. These individuals were then sent copies of both monographs. Of the thirty individuals who received these monographs 21 or 70% wrote letters acknowledging the receipt of the monographs, commending them, and stating they would be of value. In a number of cases multiple copies of the research monographs were requested.

It can be reasonably assumed that not all the individuals who wrote acknowledgements of the research would utilize it. On the other hand, there is a good possibility that, because of a more personalized contact with the New England Rehabilitation Research Institute, a greater awareness of the utilization potential of the particular research was developed and that some of the aggressively solicited recipients of the monographs might apply at least portions of the research findings. It should be remembered that the utilization of research findings does not necessarily imply the development of new programs or even totally new ways of doing things. Parts of research findings can be used to institute minor changes which are helpful.

For example, one state rehabilitation agency director, after reading a New England Rehabilitation Research Institute study by Goldin (5) on the role of the rehabilitation counselor in the state agency, noted the finding that many counselors have a feeling of low professional prestige when comparing themselves with other professionals because of a feeling of lack of autonomy in their practice. In accordance with this finding the state director made some minor procedural changes in the mechanics of processing cases, such as no longer requiring the supervisor's signature on certain forms, so that the counselor's signature was sufficient.

Also, certain types of casework decisions formerly reserved for the supervisor were allocated to the counselor. Within six months the morale and productivity of the agency improved. While the improvement could not be completely traced to the procedural changes, observations of the state director led him to believe that they had played a significant part in the betterment of agency services. It is the opinion of the New England Rehabilitation Research Institute staff that aggressive dissemination of research results to a selected target audience is of value and certainly merits further exploration and development.

Conceptual Comprehension

Even if research information is well disseminated and received, it has no value for utilization unless the concepts which it embodies are well understood by potential users. Moreover, its very reception depends upon its comprehendibility. If practitioners and administrators pick up a piece of research writing that does not clearly communicate its basic concepts and ideas, their motivation to read and gain understanding of the information is markedly decreased. In some cases the reader will not complete reading of the research; in others he will put it aside at the outset. Yet, researchers, academicians, as well as technically sophisticated practitioners and administrators remain unchallenged and even intellectually insulted by what they consider oversimplified research reports. In addition, there is a body of opinion in the field which holds that simplification of research reporting does the practitioner and the administrator a disservice and has the effect of downgrading the field of rehabilitation. At a recent rehabilitation research utilization conference at Springfield College, Dembo (2) took the position that simplification of research information could decrease the utilization value of the research. She was of the opinion that the practitioner should not be pampered or spoon fed but, rather, should be trained and helped to understand, appreciate, and utilize research results in their original form.

Trotter, Wright and Butler (23) made a significant contribution to the understanding of the dissemination of research findings in demonstrating experimentally that abstracts convey information on research adequacy and content as well as final reports and Vocational Rehabilitation Administration (now Rehabilitation Service Administration) summaries. They also found that practicing rehabilitation counselors could assess communication of research adequacy and content informa-

tion as well as rehabilitation researchers and educators. The Trotter study utilized a "panel of judges method" coupled with rigorous statistical analysis.

As one means of resolving this problem, the New England Rehabilitation Research Institute has adopted a bi-level approach in regard to the level of sophistication of its research reports. It targets its research reports at two audiences simultaneously. In other words, it attempts to reach both the technically sophisticated research consumer and the less sophisticated practitioner and administrator in the same monograph. For example, in its monograph, "Dependency and its Implications for Rehabilitation", (7) there were four chapters. Two chapters dealt with theories, concepts and research which were complex and required some prerequisite knowledge. Two other chapters were relatively simply written and highly pragmatically oriented. Another means of increasing reception of research information is to write it in the language and even the jargon of the particular audience being targeted.

Psychosocial Acceptance

Even though research results are transmitted to, received by and comprehended by potential users they will not be utilized unless they are accepted on an emotional basis by the individuals responsibile for their implementation and on a social basis by the organizations which they affect. The need for such acceptance is clearly indicated in our survey of the literature.

The reasons for the lack of such acceptance are complex within themselves and become even more complex since they rarely occur in isolation but, rather, act in combination. An excellent example of what occurs when innovations are rejected by an organization was cited by Dumas (3) who stated:

> The most harrowing (and true) story concerns a large (nameless) firm whose management decided to be very modern and establish a computerized information system. For reasons already enumerated, the firm's personnel passively resisted this innovation. The management sensed this, but went ahead on the assurance of its computer experts that the whole process would be completed in two years at a cost not exceeding $1.5 million. The final results were that it took five years and $5,000,000.00. The firm's original records were turned to scrap paper. The old line personnel left in droves, the system never operated properly, and all the people who knew how to make the business function were now employed elsewhere. It's my understanding that this corporation is now in receivership and under new management.

Some of the basic reasons for the rejection of research results which occur on an emotional basis are:

1. Mobilization of natural anxiety concerning the unknown and the untried.
2. Lack of motivation to expend the extra psychic and physical energy necessary to set up the new machinery for innovation.
3. Deep seated feelings of inadequacy concerning one's ability to cope with the demands of new learnings and adaptation to changes.
4. Personal hostility displaced upon the change agent.
5. Guilt concerning what may happen to others in the organization as a result of the change.
6. Interpretation of the need for change as an indictment of failure on the part of the individual to make current practices operate adequately.
7. Fear of losing the love and approval of others affected adversely by the change brought about through the application of research.
8. Fear of failure.
9. Fear of the readjustment or realignment of interpersonal relationships.
10. Fear that the application of the new research results will reveal either real or fantasied inadequacies in the individual.
11. Concern over research as a process which is cloaked in the minds of some with mysticism and contains the threat of looking into, examining, and exposing.
12. The fear of negative community attitudes concerning the application of research.

Not all reasons for the failure to utilize research results are strictly emotional in nature. Some are to be found in the sociology of organizations and the relationship of the organization to the community. Some of these social reasons are:

1 The reluctance of agency or organization administrators to risk the community's hostility and resentment which stems from their need to preserve the status quo.
2. The administrator's perception of the innovation as a threat to his control of the situation which he maintains by preserving the balance of variables within the organization.

3. Concern that the innovations brought about by the research results will disrupt the established communication channels which the administrator depends upon within the organization.
4. Concern by the administrator that the application of the new research results will cause a new realignment of loyalties, allegiances, and commitments among subordinate personnel.
5. Wariness by practitioner staff that the innovative procedures may result in their reduced qualitative and quantitative productivity, particularly while new procedures are being learned.
6. Anxiety among the practitioner staff that clients may be harmed or done a disservice by the new procedures.
7. Anxiety among practitioner staff that the innovation resulting from research will disrupt existing team or working relationships both within the agency organization and in the community.
8. Concern that the application of the particular research will result in activity which runs counter to the existing norms and values of the organization.

CHAPTER IV

COMPONENT SYSTEMS IN RESEARCH UTILIZATION

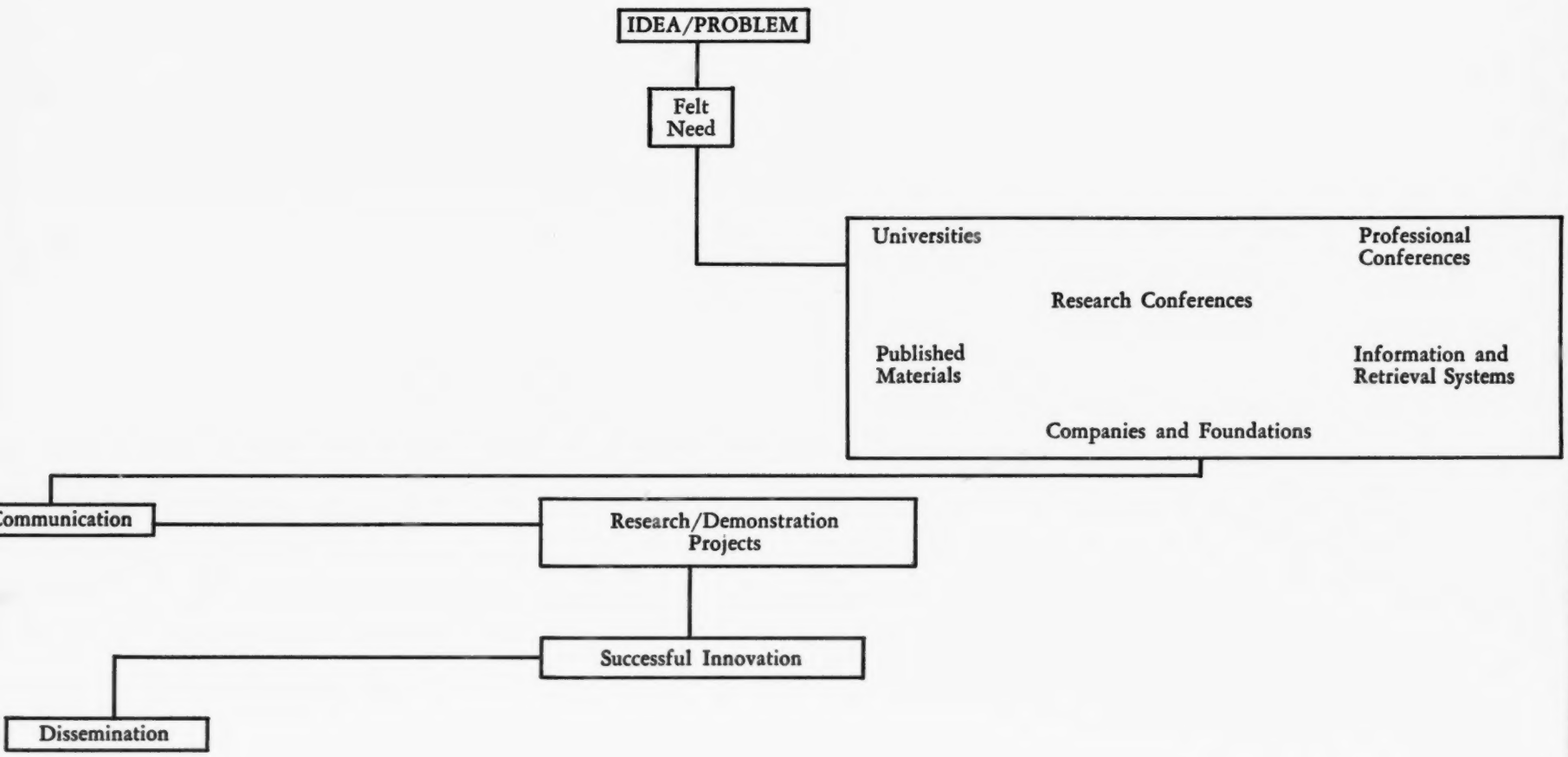
The utilization of any research results does not take place within the confines of one simple system but, rather, as a function of the interaction of a number of interacting and interlocking systems. To provide an analytical model, we have identified the four major subsystems which comprise the total research utilization system. Although our concern is with rehabilitation research, these same four subsystems are operational in the utilization of research results in all fields. The four subsystems are:

1. The information-education system
2. The diffusion system
3. The change system
4. The action system

The accompanying flow charts illustrate the manner in which ideas, problems and needs reach fruition. The utilization of research takes place as a result of the interaction of the four subsystems mentioned above. The process through which needs are satisfied and problems become resolved can be seen as taking place through the occurrence of a sequence of acts which transpired as part of a specific system. We have attempted to analyze each system by itself and in Flow Chart "E" all systems are superimposed so that their interaction can be studied.

The Information-Education System

While the diffusion, change, and action systems are so closely interactional that in the process of research utilization one cannot exist independently without the others, the information-education system can and, in some instances, does exist in its own right. The information-education system diagrammed in Flow Chart A indicates that most research originated with an idea or problem. Whether or not the results of research on this idea or problem have any chance of becoming utilized depends essentially upon whether or not there is any felt need for change in the particular area with which the particular research is concerned. Traditionally the information-education system has not concerned itself with the probability of utilization. Its major concern was the creation and communication of new knowledge. It was not concerned with value


IDEA/PROBLEM
Felt Need
Universities
Professional Conferences
Research Conferences
Published Materials
Information and Retrieval Systems
Companies and Foundations
Communication
Research/Demonstration Projects
Successful Innovation
Dissemination
Information-Education System

Flow Chart "A"

judgements or how research would be utilized. It is said, in effect, "here is the new knowledge, world; do as you will with it. As scientists and researchers, this is not our concern. Take it or leave it".

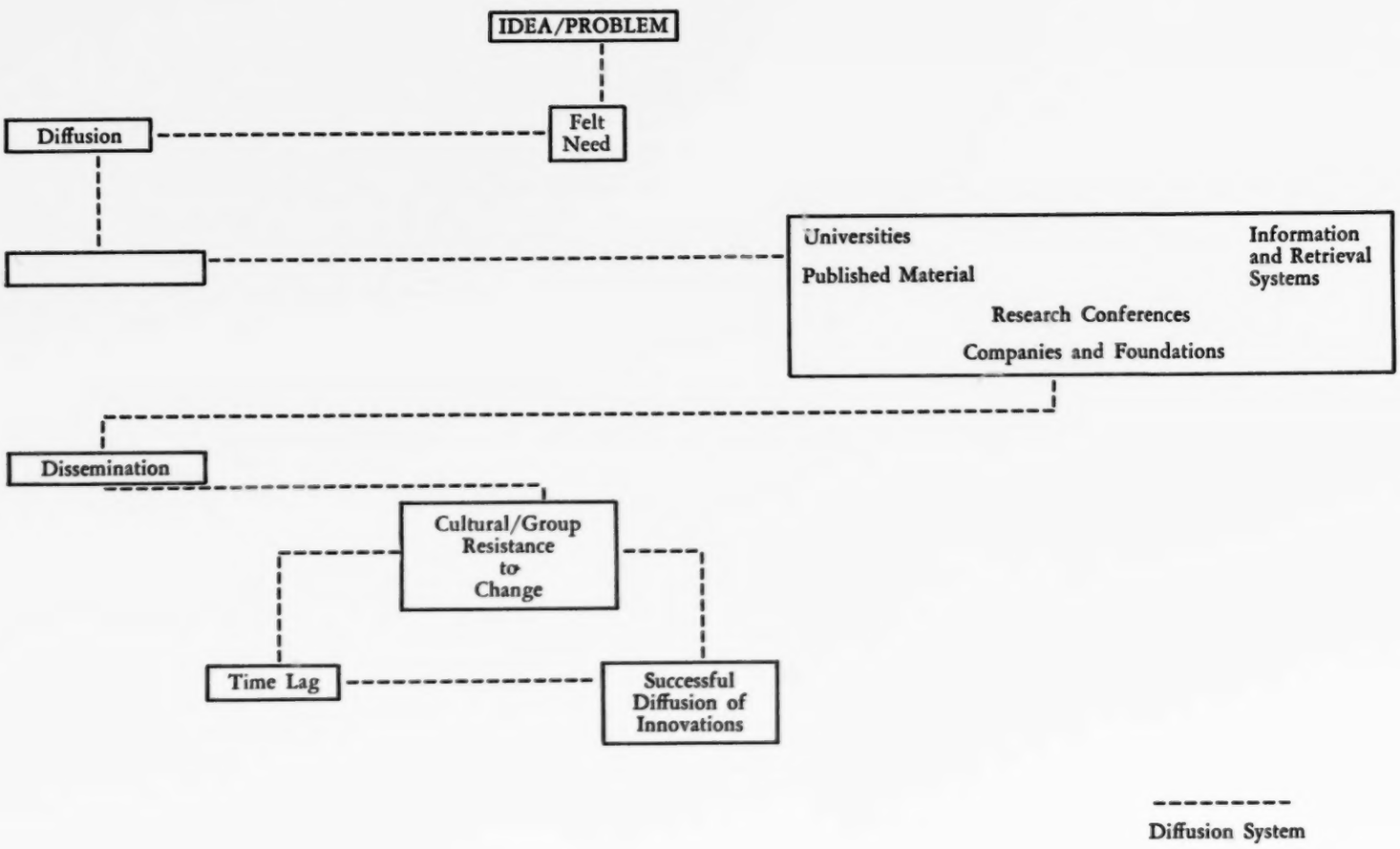
Although this attitude is changing and researchers are becoming more concerned with utilization, the fact is that much of the "knowledge mill" has the intellectual and academic freedom to remain uninvolved with utilization of research. Ideally, the information-education system should operate as indicated in Flow Chart A. To achieve the optimum functioning of the information-education system in the process of research utilization a "utilization mindedness" must be created within the rehabilitation researcher so that he will become concerned with building utilization potential into the research design at the outset of the research.

The Diffusion System

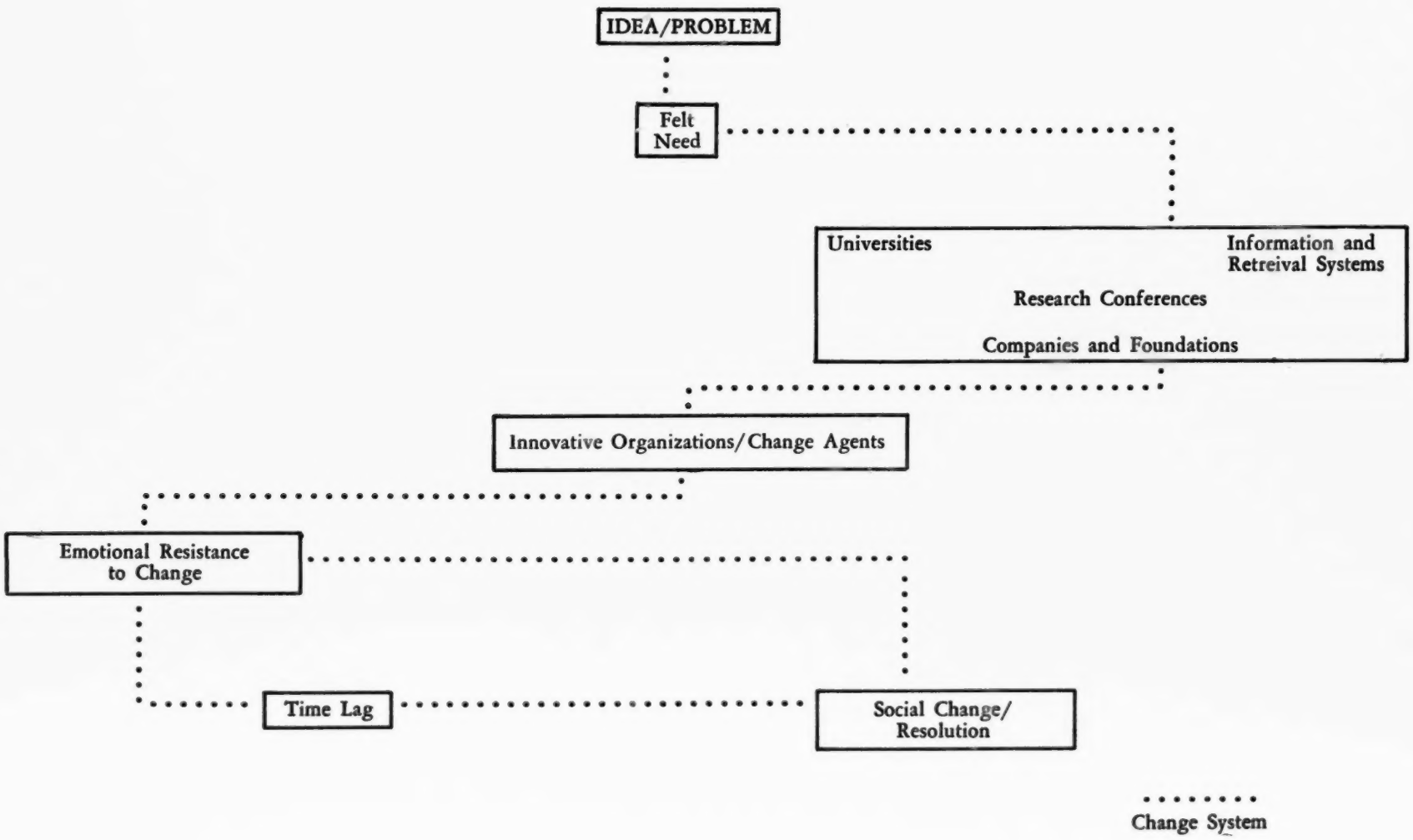
The information-education system has been able to, to a considerable extent, perpetuate itself on the basis of its prescribed social role, the production and transmission of knowledge. The diffusion system, on the other hand, must, in order to maintain its functioning successfully, challenge existing norms and values of the social system upon which it is acting at a given time. One interesting facet of the diffusion system is that the process of diffusion takes place at two distinct levels as indicated in Flow Chart "B". Due to the existence of a felt need the idea or problem must be diffused to the appropriate research resources in order that the problem be confronted and set up for resolution. Once the researcher has obtained results with which to resolve the problem, the innovation which these results require must be again diffused throughout the groups in the face of resistance to change which the group culture mobilizes.

The Change System

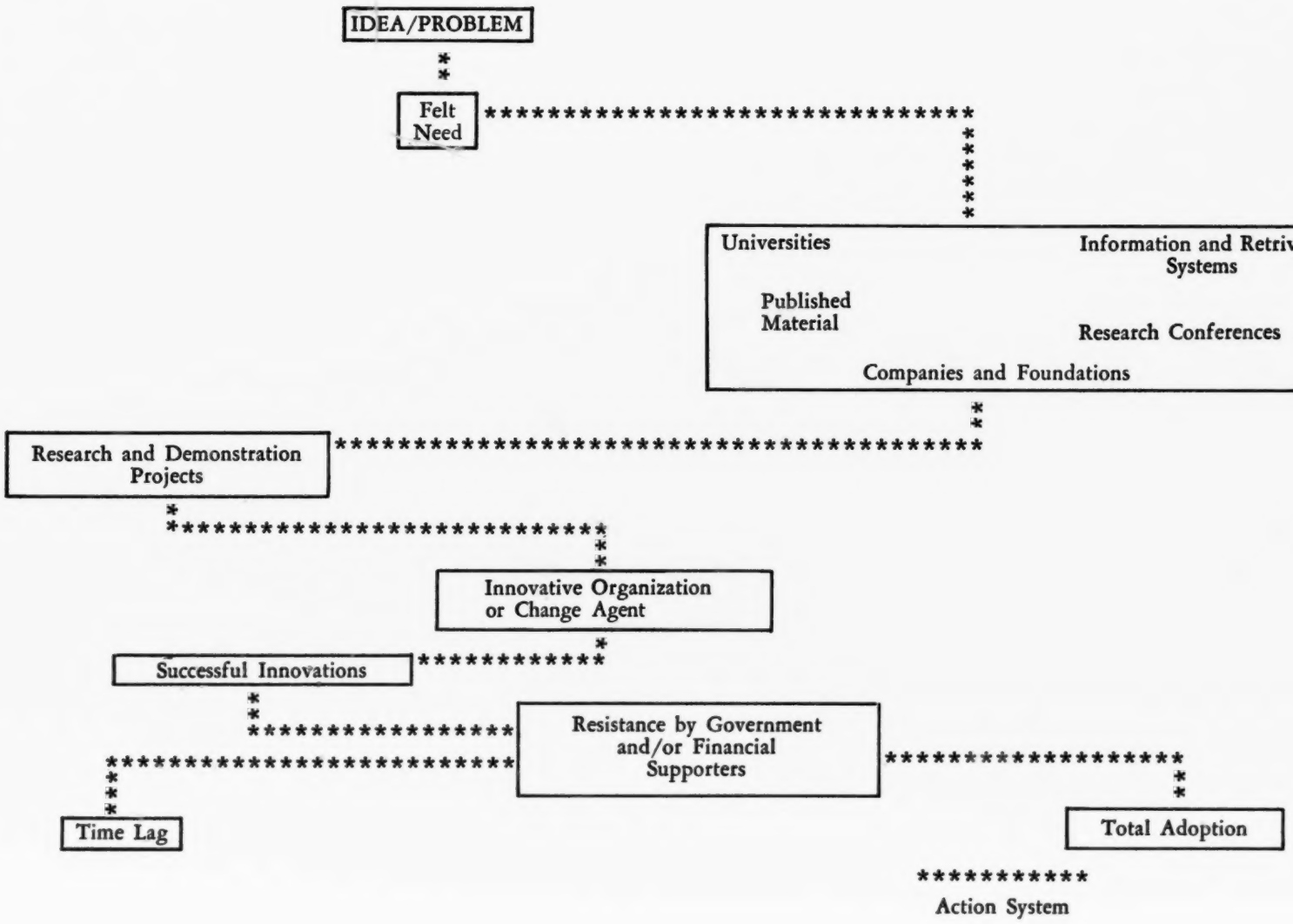
The change system is essentially the same as the diffusion system. They are congruent in their operation except for one major difference at a given point. The diffusion system may or may not involve a change agent. While a change agent does act as a catalyst for the facilitation and expedition of change, the diffusion of research results can take place over time in a chance or undifferentiated way without designated change agents. However, as indicated in Flow Chart "C", the change system involves the conscious and planned use of a mediating force, the change


IDEA/PROBLEM
Felt Need
Diffusion
Universities
Published Material
Information and Retrieval Systems
Research Conferences
Companies and Foundations
Dissemination
Cultural/Group Resistance to Change
Time Lag
Successful Diffusion of Innovations
Diffusion System

Flow Chart "B"


IDEA/PROBLEM
Felt Need
Universities
Information and Retreival Systems
Research Conferences
Companies and Foundations
Innovative Organizations/Change Agents
Emotional Resistance to Change
Time Lag
Social Change/ Resolution
Change System

Flow Chart "C"


IDEA/PROBLEM
Felt Need
Universities
Information and Retrival Systems
Published Material
Research Conferences
Companies and Foundations
Research and Demonstration Projects
Innovative Organization or Change Agent
Successful Innovations
Resistance by Government and/or Financial Supporters
Time Lag
Total Adoption
Action System

Flow Chart "D"

agent or organization. The change implementing mechanism serves to mediate between the principal agencies of the information-education system and the groups designated as change targets.

The Action System

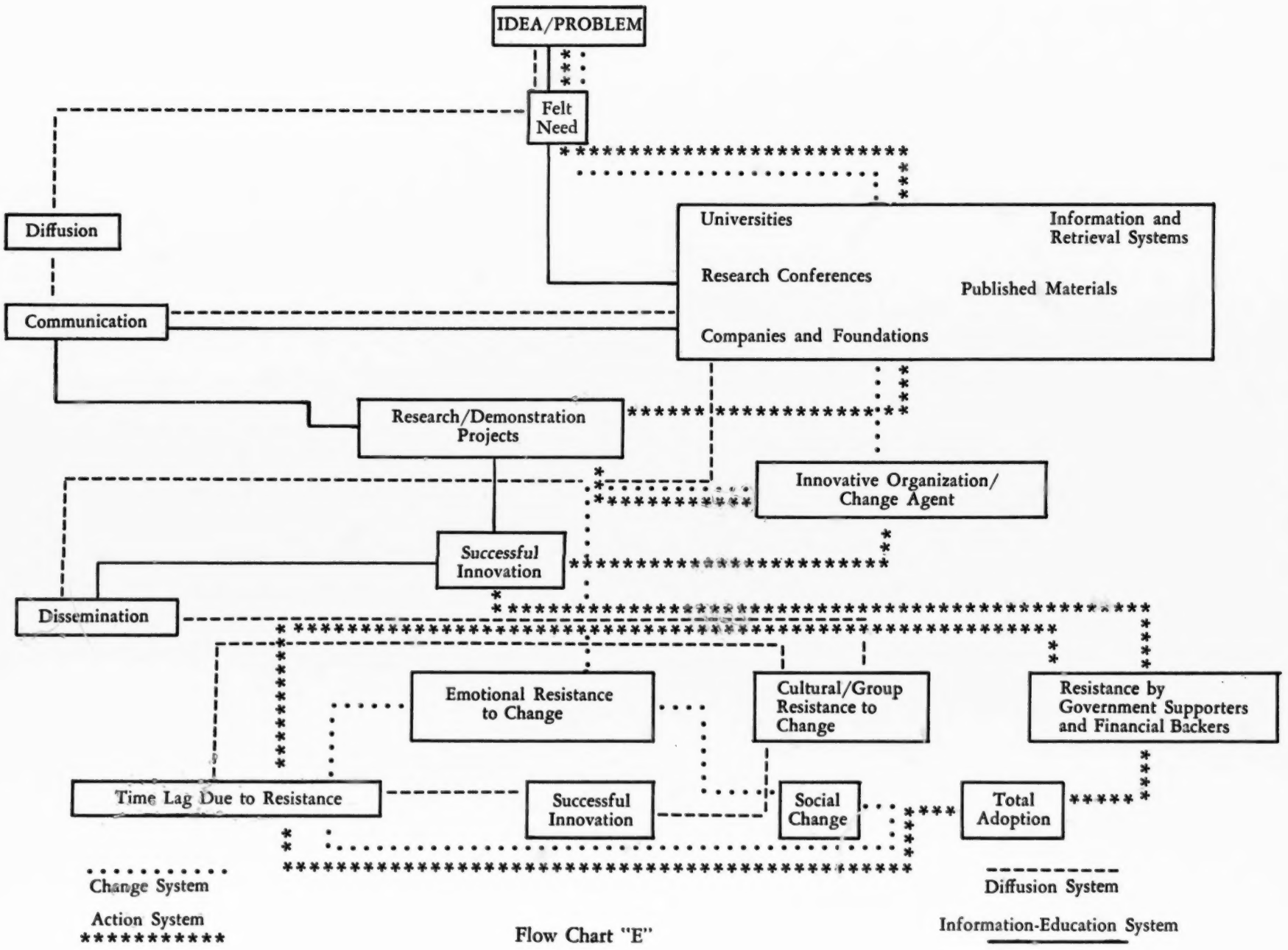
The action system (diagrammed in Flow Chart "D") is involved in the setting up of practical steps to be taken to spread the adoption of innovation and change once it has been accepted within certain groups. The fact that the application of research results has taken place in particular areas does not necessarily mean total adoption in any widespread manner. There can still be much resistance to change and considerable time lag between partial and total adoption.

The action system also is concerned with the mobilization of broad scale financial support for promotion of a more total type of innovation indicated by research results. Resistance to the financing of innovation can come both from government and private sectors. There is usually a time lag between the acceptance of the innovative idea and the financing of its widespread adoption. A principal function of the action system is the reduction of this time lag and the development of the required administrative apparatus for gaining widespread acceptance and installing the innovation throughout the service delivery systems involved.

Relationship of Systems

The diagrammatic presentation in Flow Chart "E" superimposes the four systems to illustrate where they are congruent and where they are divergent. This composite diagram is presented to illustrate the complexity of the path which research results follow from the point of inception to the point of broad adoption. This diagram also indicates the points at which these systems reinforce each other and where they are mutually negating. For example, emotional resistance of individuals as encountered by the change system plus cultural resistance to change as dealt with in the diffusion system in combination with political resistance to change which must be confronted by the action system amounts to massive resistance to change which opposes the utilization of research results.

The important factor which determines the efficiency and the effectiveness with which the utilization subsystems operate is the level and qual-


IDEA/PROBLEM
Felt Need
Diffusion
Communication
Universities
Information and Retrieval Systems
Research Conferences
Published Materials
Companies and Foundations
Research/Demonstration Projects
Innovative Organization/ Change Agent
Successful Innovation
Dissemination
Emotional Resistance to Change
Cultural/Group Resistance to Change
Resistance by Government Supporters and Financial Backers
Time Lag Due to Resistance
Successful Innovation
Social Change
Total Adoption
Change System
Action System
Diffusion System
Information-Education System

Flow Chart "E"

ity of communication that can be developed within and between these subsystems. At any one of the communication junctures within and between subsystems (represented in the preceding diagrams by the lines joining the blocks) information can be amplified, attenuated, modified, stored, or completely blocked. Thus, the flow of vital communications in the research utilization subsystems in a certain sense are analogous to the flow of electricity in a circuit with the various roles acting as transformers, capacitors, etc.

Internalized Assimilation

Even when research results are received, thoroughly understood, and accepted emotionally by the individuals concerned and socially by the organization which is involved, complete utilization is not guaranteed. Complete utilization takes place only when personalities involved adapt so completely to the innovation that it becomes internalized. That is, their identification with it proceeds to the point where they perform in the innovated manner without much thought or consideration of the new procedure or idea. In other words, the new way of doing things must become "a part of the muscle" of the individual and the organization.

An example of the requirement of internalized assimilation of innovation was clear in a study of a state rehabilitation agency by Goldin (6). The particular state agency was in the process of installing a new statistical reporting system. Because of the staff's negative feelings in regard to the change agent and other adverse organizational factors, the practitioner and supervisory staff were highly resistive to change. So resistive was the staff that serious dissension and organizational rifts were created which, to some degree, impaired the optimum functioning of the agency. As a result of interpretation and involvement of the "group process," staff did accept the new statistical reporting system. However, it required two years before the system began working with a sufficient degree of effectiveness, because it had not become fully internalized by most staff members.

In summary, it can be said that the utilization of rehabilitation research involves aspects which are mechanical, intrapersonal, and organizational in character. The storing, retrieval, and dissemination of research results is dependent upon some amount of mechanical efficiency and effective operations. However, the application of research results

is dependent upon the complex processes of social change in groups and the overcoming of psychological resistance in individuals. This chapter has attempted to deal with the concepts of research utilization, point up specific problems, and begin to suggest approaches for their resolution.

CHAPTER V

SUMMARY AND RECOMMENDATIONS

The literature, our observations, and our research data indicate that the effectiveness with which rehabilitation research is utilized is related to three major variables. These are the scope and selectivity with which research information is disseminated; the clarity and attractiveness with which the research results are written; and the nature of the psychosocial transactions involved in overcoming resistance to change. The implementation of research findings is, in essence, a process of innovation. Therefore the psychological and sociological principles governing the process of psychosocial change are a major consideration in the utilization of rehabilitation research.

Maximum utilization of rehabilitation research depends upon the development of a partnership between the researcher and the practitioner and rehabilitation administrator. The field cannot rely upon the researcher alone to disseminate, interpret and induce the implementation of research findings. Even the introduction of a research utilization specialist (change agent) is not sufficient to produce the resolution of problems and the innovation required in the field of rehabilitation.

What is needed is the building of an internalized rehabilitation research utilization mindedness within the professional value system of the rehabilitation practitioner and administrator. Thus, practitioners and administrators could develop the knowledge and motivation to take some responsibility for the communication of problems to the researcher so that he can design and carry out studies which would have immediate utilization value. In other words, the utilization of the research findings would be built into the design.

A major problem lies in the facilitation of communication between the researcher and the practitioner or administrator. Unfortunately, both groups suffer from the wearing of professional blinders. The researcher, in his involvement with the world of chi squares and factor analysis, is not frequently cognizant of the pressing problems and demands made of practitioners and administrators. Conversely, practitioners and administrators know little about the potentials and limitations of research.

Based upon observations, findings, and the literature included in this monograph the following recommendations are submitted:

1. In order to inculcate an orientation to research utilization the rehabilitation practitioner should be expected to review and report on a specified number of (two or three) research studies which have applicability to his work. This would be considered as part of his job description and pointed out to him when he is hired. In other words, an attempt should be made to structure research utilization into the practitioner's professional role.
2. A national research utilization committee should be created and composed of rehabilitation researchers, practitioners and administrators in key positions to assist the Social and Rehabilitation Service research utilization branch in an advisory capacity and to stimulate the utilization of rehabilitation research.
3. Research Utilization Committees which are counterparts of the National Rehabilitation Research Committee should be organized at the agency level, particularly in the state rehabilitation agency.
4. The academic training of the rehabilitation researcher should include material on the principles of research utilization with emphasis on the psychosocial aspects of innovation and change.
5. The advocacy principle should be employed in the utilization of particularly important applications of research findings. For example, organizations such as the National Rehabilitation Association could be instrumental in advocating the adoption of certain innovations which research established as having important value.
6. A section outlining utilization plans could be included in research proposals or grant applications. While it might not be possible to follow these plans closely following completion of the research, at least guidelines for the use of the particular research would be established.
7. Rehabilitation Research Institutes, Research and Training Centers, as well as the research departments of state rehabilitation agencies and private rehabilitation agencies, could work on the development of an active consultation program in the utilization of rehabilitation research.
8. Since face to face psychosocial transactions are an important factor in the dissemination, interpretation, and acceptance of research results, the frequency of rehabilitation research utiliza-

tion conferences should be increased, not only on the national level but on the local level as well.

9. In research courses, both on the undergraduate and graduate level, increased emphasis should be placed on the writing of research reports with the goal of utilization in view. Thus, such factors as clarity, comprehension, and comprehensiveness would be stressed.

10. Intelligent consumption of research results requires training and understanding. It is, therefore, recommended that in-service training be designed for rehabilitation practitioners which will focus upon the understanding and application of research results, particularly in the clinical area.

11. Finally, it is important to emphasize serious consideration of the aggressive or outreach concept in the selective dissemination of research results. There are key practitioners, administrators, and planners in the professional rehabilitation community who would consider the application of research results if these were placed before them but would not mobilize sufficient goal directedness to actively seek out new ideas and the results of research. These individuals and groups should be identified and announcements and summaries of new research findings should be sent them with an invitation to receive the complete study along with interpretive material and implications for application. However, mere aggressive dissemination is not sufficient to reinforce the probability of actual utilization. In addition, repeated outreach follow-up measures should be instituted. In this process letters are written to key potential users of the research results which contain offers of assistance in the form of written communication relative to the utilization of the research. Although it is difficult to predict the effectiveness of this aggressive dissemination technique, it is safe to assume on the basis of research observations made by the New England Rehabilitation Research Institute that research utilization will be increased in some measure.

APPENDIX

QUESTIONNAIRES USED IN STUDY

In regard to Monograph No. 1 DEPENDENCY AND ITS IMPLICATIONS FOR REHABILITATION please answer the following:

How much of the monograph did you have time to read:

( ) Less than one-third
( ) One half
( ) More than one-half
( ) The entire monograph

Did you find the reading:

( ) Unclear
( ) Acceptably clear
( ) Very clear

Did you find this work:

( ) Uninteresting
( ) Moderately interesting
( ) Highly interesting

Did you make any specific use of the monograph other than reading it for your own information?

If so, check one or more of the following: Utilized the monograph

( ) In teaching a course
( ) In in-service training
( ) In preparing a lecture, talk or other paper
( ) In preparing a research design or proposal
( ) In background or literature survey
( ) In clinical practice
( ) In administrative practice
( ) In social or community planning
( ) Other Please specify _____

Did the monograph stimulate your thinking on the subject?

( ) Yes ( ) No

If yes, please describe how.

Other comments:

Thank you.

_____
Name

_____
Organization

In regard to Monograph No. 4 A COMPARATIVE STUDY OF THE REDUCTION OF DEPENDENCY IN FOUR LOW-INCOME HOUSING PROJECTS: A DESCRIPTIVE AND CONCEPTUAL INTRODUCTION please answer the following:

How much of the monograph did you have time to read:

( ) Less than one-third
( ) One half
( ) More than one-half
( ) The entire monograph

Did you find the reading:

( ) Unclear
( ) Acceptably clear
( ) Very clear

Did you find this work:

( ) Uninteresting
( ) Moderately interesting
( ) Highly interesting

Did you make any specific use of the monograph other than reading it for your own information?

If so, check one or more of the following: Utilized the monograph

( ) In teaching a course
( ) In in-service training
( ) In preparing a lecture, talk or other paper
( ) In preparing a research design or proposal
( ) In background or literature survey
( ) In clinical practice
( ) In administrative practice
( ) In social or community planning
( ) Other Please specify _____

Did the monograph stimulate your thinking on the subject?

( ) Yes ( ) No

If yes, please describe how.

Other comments:

Thank you.

_____
Name

_____
Organization

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